The Veterinary Record

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 15. APRIL 12, 1941. VOL. 53.

SOME ASPECTS OF BOVINE SURGERY*

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Introduction.—I noticed from the *Veterinary Record* that I am down to read a paper on some hints on bovine surgery; actually what I wished to do was to read a paper on some aspects of bovine surgery, with the hope of obtaining some useful hints for myself from your members as a result of the subsequent discussion. May I say how pleased I am to come to your meeting at the request of your President, my old friend, Gerard Benbow.

Amputation of the Bovine Digit

INDICATIONS.—This operation is usually necessitated as a result of a penetrating wound at the postero-mesial aspect of the claw near the junction of the wall and the bulb of the heel. At this point the synovial membrane of the corono-pedal and navicular articulation is only about ¼ inch from the surface and may be easily wounded by nails, pieces of wire, glass, etc. In other cases it may occur as a result of a bad attack of "foul" with necrosis extending into the before-mentioned structures. In either case the result is the same, one of infected arthritis and tendo-vaginitis with, later, necrosis of the articular surfaces and surrounding structures. The animal is extremely lame, refusing to put the foot to the ground; there is a very rapid loss of flesh, it has considerable difficulty in rising and unless surgical treatment is adopted in most cases the animal dies from exhaustion or septicaemia. Generally by the time the veterinary surgeon is called in, the region between the coronet and fetlock joint is extremely swollen with one or more sinuses at the coronet on the outside. A definite diagnosis may easily be arrived at by passing a probe along one of the sinus tracts and finding that it encounters one or other of the affected bones.

SITES OF OPERATION.—There are generally two, or perhaps three, sites for this operation, according to the method selected:—

(1) Disarticulation between the corono-pedal articulation, leaving the navicular bone *in situ*. The advantage claimed for this method is that the horn eventually covers the site of the operation. I object to this method, however, because I feel it is surgically unsound, and often unsatisfactory—in that the amputation may have to be carried out higher up and even if recovery takes place the animal is lame for a long time and frequently becomes lame at a later date from injuries to the stump.

(2) Amputation between the os suffraginis and os corona is, in my experience, equally unsatisfactory.

(3) In my experience the best results are obtained when the amputation is made through the middle of the os suffraginis, because here you are dealing with healthy structures and the healing process is rapid.

Choice of Anaesthetic.—This operation does not appear in the list of operations covered by the Animals Anaesthetic Act, 1919, for which either a general or a local anaesthetic is required. If I may be allowed to digress for a few moments, I would say that here is where veterinary surgeons—and in particular country practitioners—should see to it that a vast improvement is made. Doubtless the good people who framed the act were very able lawyers, but they could not possibly have been veterinary surgeons,. I prefer to pre-narcotise the animal with 1 to 2 oz. chloral hydrate given in a pint of milk, and I use a local anaesthetic—no doubt many practitioners prefer general anaesthesia, but here again I am a long way from being satisfied with general anaesthesia in the larger animals. How often have any of the members here performed operations under general anaesthesia in these animals and been convinced in his own mind that perfect anaesthesia has resulted?

Having pre-narcotised the animal with chloral, a rope is applied according to Reuff's method, omitting the loop at the base of the neck. If possible the local may be injected before casting; if awkward, after casting. The injections are made a little below the level of the dew claws. The first is in front of the pastern in the mid-line, using a strong needle about 2 inches long and making the injection both superficial and deep, 1 per cent. solution of any of the well-known local anaesthetics being employed. A similar injection is made on the posterior aspect, again in the mid-line. A third injection is made in the mid-line of the lateral aspect of the digit and a fourth posterior to this injection and about mid-way between it and the posterior injection. These last two injections are of course superficial and, in all, some 30 to 40 c.c. of local anaesthetic is used. Ten to twelve minutes should be allowed to elapse before commencing the operation, during which time the digit may be thoroughly cleansed by scrubbing with a brush, and soap and water to which has been added some antiseptic, such as Dettol, care being taken to see the interdigital space is rendered as clean as possible. The whole area is then cleansed with spirit. If operating on a fore digit, after casting and having a good man seated on the neck, the cow's hind legs are tied

*Presented to the meeting of the Derbyshire Division, N.V.M.A., held at the Midland Agricultural College, Sutton Bonington, February 26th, 1941.

together and either held by a man or fixed to a door-post or any other convenient object. The foot to be operated upon is then placed upon a box. The opposite fore foot is tied by another rope to the two hind feet.

If it is a hind limb digit that is to be amputated then epidural anaesthesia may be used and is quite satisfactory. In such a case the injection is made before casting the animal and the local anaesthetic (1 per cent.) warmed before injecting; the epidural needle may be left in position in case more "local" is required. Immediately before commencing the operation a rubber tourniquet is applied.

Instruments Required.—One large strong scalpel and one Bard Parker; one saw, spare blade; two retractors; two pairs of artery forceps; scissors; rat-toothed forceps; half-circle needle (carrying tape); needle holder; tape, gauze, cotton wool and silk.

The site of the operation is now again cleansed with spirit and afterwards with Harrington's solution. The surgeon, having thoroughly cleansed his hands, may apply sterile cloths: one around the leg immediately above the fetlock joint and one between the digits and attached below with clips to the upper cloth.

Operative Procedure.—The first incision is made in the mid-line in front of the pastern, extending from the anterior end of the interdigital space to about the level of the dew claws; a similar incision is made in the mid-line on the posterior surface and a third perpendicular to the coronet and in the mid-line of the lateral aspect, again to the level of the dew claws. A semicircular incision parallel to and a little above the coronary band is now made connecting the lower extremities of all the three previous incisions. The two flaps of skin so formed are reflected from the under-lying tissues and a fifth incision is made between the interdigital space, connecting the lower ends of the anterior and posterior incisions. This incision is carried upwards between the two digits, keeping as close as possible to the bony structures of digit being amputated and extending upwards to the middle of the suffraginis. The two flaps of skin are now held back with retractors and the os suffraginis is sawn through about its middle. The digit is now loose and any remaining attachments are severed. The field of operation is now examined for any remains of diseased tissue, and dealt with appropriately. The tourniquet may then be released and arterial haemorrhage arrested, any bleeding vessels being ligated with silk, and the tourniquet reapplied.

The two flaps of skin are now sutured together by means of one tape suture at their distal ends and to the skin of the opposite digit at the distal end of the anterior incision and also the distal end of the posterior incision, thus forming a short sleeve into which is placed a piece of sterile gauze (soaked in 1/1,000 acriflavine), and the cavity is firmly packed with sterile cotton wool also soaked in 1/1,000 acriflavine. When the cavity has been filled a swab soaked in 1/1,000 acriflavine is placed over the area and tightly bandaged by means of a 3 inch calico bandage (or bandages). The tourniquet is now removed and a clean bag put over the whole digit and tied securely. Ropes are now removed and the animal is allowed to rise at its leisure.

Dressings.—The primary dressing may be left in place for four days when it should be removed and the sterile swab soaked in equal parts glycerine and 1/1,000 acriflavine. The wound is not washed with water (the old dressing is removed and a new one replaces it). A week later the dressing is again changed and may be replaced with a similar dressing or the wound may be washed off with spirit and the cavity packed with Bipp. In either case the dressings are changed at weekly intervals, with the exception of the first, for six weeks from the date of operation when further dressing should not be necessary.

Prognosis.—Prognosis in the immense majority of cases is excellent. Within a day or two of the operation the animal begins to put some weight on the foot and at the end of six weeks should be sound.

Occasionally when the infection has spread beyond the site of amputation abscess formation may occur, particularly over the region of the flexor tendons a little above the fetlock joint. Such abscesses should be opened and drained and in the majority of cases the animal will make a complete recovery, although the time required will be longer by two to three weeks than in the uncomplicated cases.

Rumenotomy

This operation may be performed for relief of impaction of the rumen, tympanites (not the result of enlarged mediastinal lymphatic glands), or the removal of foreign bodies from the reticulum in cases of traumatic gastritis.

Site of Operation.—In the left flank between the last rib, the lumbar transverse processes and the tuber coxae. An area over this site about 8 inches by 8 inches is clipped (it may be shaved) and well washed with soap and water and afterwards with spirit.

Local anaesthesia is used, the agent being introduced beneath the skin along two lines forming the letter "T"—the horizontal part of the "T" being parallel to the extremities of the lumbar transverse processes and the vertical immediately beneath the site of the intended incision.

Restraint.—The animal is held by the nose and the tail held round the left hind leg during the injection of the local anaesthetic. It is often advantageous to make a cutaneous bleb with an intradermal (dental) syringe at the upper limit of the intended incision, *i.e.*, at the junction of the horizontal and vertical lines forming the letter "T". A few minutes are allowed to elapse and a small incision is then made through the skin at this point with a "Symes" abscess knife; this greatly facilitates the passing of the hypodermic needle for the introduction of the "local." The needle should be 4 or 5 inches in length and passed anteriorly, parallel to the extremities of the lumbar transverse processes, the injection being made as the needle is withdrawn. The needle is now introduced in the same hole and passed posteriorly in the same manner; lastly, it is passed vertically downwards and more local anaesthetic introduced: in all, about 60 c.c. of 1 per cent. solution are introduced. Some ten to twelve minutes are allowed to elapse before commencing the operation.

Instruments Required.—Scalpels (two); retractors (two); two pairs artery forceps; one pair scissors; one pair rat-tooth forceps; two half-circle needles for carrying tapes; one needle holder; fine silk, half-curved needle and swabs.

Operative Procedure.—All the instruments being sterilized, the surgeon now scrubs his hands, the animal is restrained by the nose and one may or may not have a kicking strap on the hind legs, depending on the temperament of the patient.

An incision through the skin is made commencing at the top of the vertical part of the letter "T" at the point where the primary incision was made to introduce the anaesthetic, and extending downwards over

the line of the anaesthetic some 6 to 8 inches. The length of the incision is determined to some extent by the size of the surgeon's arm ; if it is thin the incision may only be 5 to 6 inches, but if the forearm and arm of the surgeon are well developed the incision must be longer, 6 to 8 inches. It is better to make the incision a little too long than too short. One now encounters a little subcutaneous tissue and immediately beneath this the external and internal oblique abdominal muscles, which are very thin in this region ; immediately beneath the muscles is the peritoneum—this is incised, exposing the glistening serous surface of the rumen.

At this stage in the operation it is a good plan to pull some of the rumen wall through the incision so that it bulges from the muscular and cutaneous wounds rather like an inner tube protruding through a cut in the outer cover of a bicycle tyre. It is not always easy to do this but it can be done by passing two loops of tape through the wall of the rumen and pulling on them. The wall of the rumen is now fixed to the abdominal wall by tape sutures, the needle passing through skin, muscle, peritoneum and wall of rumen into its cavity and out again in reverse order, and including an area about 1½ to 2 inches long. One such suture is placed at the upper and one at the lower commissure of the incision and two similar sutures are inserted at each side, all these sutures being about 1 to 2 inches from the edges of the skin incision. The rumen is now incised, when the advantage of pulling out the rumen at once becomes apparent in that it considerably diminishes the risk of contamination of the wound in the abdominal wall from rumenal contents. The surgeon now introduces his arm and, depending on the condition for which the operation has been performed, removes some of the rumenal contents, a foreign body, or passes his hand into the reticulum and searches for a foreign body there. From this stage—again according to the operative indication—the incision in the wall of the rumen may be closed or left open. If a foreign body is found in the reticulum the rumen should be closed ; if the condition is one in which an excess of gas may be formed then the wound should be left open. At this stage the surgeon again thoroughly washes his hands and arms. If it is decided to close the rumen the peritoneal surfaces of the organ are swabbed with sterile swabs and the wound closed, using "Lembert" sutures of catgut (strong) or fine silk. The muscles and skin are now closed by interrupted sutures of tape, commencing 1 inch from the edges of the cutaneous incision and passing through skin, muscle, muscle, skin and then back again through the skin at the edges of the incision. This method of suturing has the advantage of obliterating all dead space between skin and muscle and turns the edges of the skin outwards, thus placing the healing surfaces in apposition. The sutures are placed at intervals of 1 inch and when completed the suture line may be smeared over with Bipp.

The anchoring sutures, *i.e.*, the sutures attaching the rumen to the abdominal wall, may be removed after three to four days and the remaining sutures about the tenth day.

Prognosis.—Prognosis is good ; occasionally in the closed operation a fistula results but generally this can easily be closed at a later date. In the open method when the digestive disturbances have subsided and the wound has drawn together it may be closed by freshening the edges and suturing.

Here allow me to digress once more. In the past surgical technique in bovine surgery has been sadly neglected, but from experience reasonably aseptic technique has incomparable advantages over older or slipshod methods ; the patient's chances of recovery are greater, pain is abolished or diminished, the healing process is much more rapid and the end result far better. If a surgical case (in bovines) drags on a long time it is usually thereby rendered an uneconomical proposition, both from the veterinary surgeon's and the farmer's point of view. I think this is one of the main factors why bovine surgery has advanced but little during the past 50 years.

Laparotomy

This operation may be performed in bovines for a number of conditions, *e.g.*, intussusception, gut tie and other forms of intestinal obstruction ; for torsion of the uterus and where Caesarean section seems to be indicated. [Mr. Gold here described an obstinate case of torsion of the uterus corrected by direct manipulation through the abdominal wall.]

The operation is performed in the right flank, in the same position as for rumenotomy but on the opposite side.

Anaesthetic.—In this case there is no choice ; the Animals Anaesthetic Act, 1919, requires the use of a general anaesthetic.

In this operation I propose to cite a case in which laparotomy was very successful. The patient was a Jersey cow with a complete torsion of the uterus and in spite of all efforts by two of my colleagues, the torsion could not be reduced. As it was a pedigree Jersey cow and the carcase of very little value from a food point of view, the owner's consent was obtained to try laparotomy and endeavour to reduce the torsion by introducing the arm into the abdominal cavity. An area about 8 by 8 inches in the right flank was clipped, washed with soap and water and cleansed with spirit.

Operative Procedure.—The animal was standing in a stall, had no restraint either at the head or hind legs, and did not evince any signs of pain during the operation. Local anaesthesia was employed, the injection being made in the form of a "T" as in rumenotomy. Instruments were sterilised, the hands and arms of the operator thoroughly cleansed and a vertical incision, about 7 inches long, was made through the skin along the line of injection of the "local." An incision was then made through the external and internal oblique abdominal muscles, exposing the parietal peritoneum which was incised ; the hand was then passed into the abdominal cavity, the uterus recognised and the hand passed along to the region of the cervix where the twisting could be easily felt. An assistant having his hand in the vagina of the cow, the uterus was rotated (the rotation was quite easily effected when once started) by pushing downwards on the mass of the uterus and rotating until the assistant stated the vagina was normal.

The arm was withdrawn from the abdominal cavity, the peritoneum sutured by a continuous suture of fine silk. The muscles and skin were closed by interrupted sutures of tape, 1 inch apart, the needle going through skin, muscle, muscle, skin and back through the two edges of the incision.

The calf was delivered after very little difficulty and the cow made an uneventful recovery and has since had another calf. I am not suggesting for a moment

that all cases of torsion should be treated this way, for the majority can be put right by rolling or other methods, but when these methods fail the operation is simple and the results are very satisfactory.

Teat Surgery

Indications: Obstructions in cows' teats.

For purposes of description such obstructions can be placed into three groups, *i.e.*, those occurring:—

(1) At the base of the teat, *i.e.*, the junction of the teat and the udder.

(2) In the middle of the teat.

(3) At the apex in the region of the orifice of the teat canal.

Etiology.—I am of the opinion that the immense majority of obstructions in the first two groups and a few occurring at the apex are the result of localised inflammation (catarrhal mastitis) affecting the mucous lining of the teat. During the dry period before calving the cavity in the teat is only a potential one; the mucous lining being in apposition, the presence of any inflammatory process affecting the lining membrane results in the two surfaces becoming adherent. This, of course, only becomes apparent after parturition and the owner finds he is unable to draw any milk from one or more of the teats.

In the cases of apical obstruction this may be the result of injury to the sphincter—as by bruising—or the result of contagious black spot.

Anaesthesia is not employed for operative treatment in either of the above conditions; in fact, the introduction of a local anaesthetic appears to cause more pain than the actual operation: this is particularly true in the case of Groups 1 and 2.

Instruments Required.—In the surgical treatment of obstructions in cows' teats the veterinary profession owes a deep debt of gratitude to Mr. Hudson, of Retford, for his introduction of the corkscrew instruments. One can quite safely say that prior to the introduction of these instruments surgical interference with the cow's teat anywhere except at its apex was almost invariably followed by disastrous results, so much so that most practitioners adopted the wisest course and left the obstructions alone. Every practitioner, I feel sure, is familiar with Hudson's teat instruments. These should be sterilised by boiling.

Procedure.—The cow is restrained by a man holding the nose and by the kicking strap or rope around the legs. In the case of obstructions occurring at the base or in the middle, the teat is grasped in the left hand and its apex thoroughly cleansed by rubbing with a swab of cotton wool soaked in spirit. The probe is now introduced through the sphincter and passed up the teat to the obstruction. Having carefully ascertained the centre of the obstruction, the probe is forced through: the position of this primary puncture is of considerable importance because upon it depends to a considerable extent the success of the operation.

The probe is withdrawn and the corkscrew instrument is carefully twisted through the sphincter. This instrument is passed up the teat carefully until the obstruction is encountered; when the hole formed in the membrane is found the instrument is screwed through. The teat is grasped in the left hand and the instrument held in the right; both hands being against one another, traction on the instrument is now exerted by the right hand levering against the left: if the obstruction does not give way under reasonable traction then it is advisable to unscrew the instrument one or two turns and to try traction again—this may be repeated until the teat canal is patent. In some cases of obstruction occurring in the middle or a little nearer the apex it may not be possible to break down the obstruction by traction (there being insufficient room between the obstruction and the sphincter): in such cases the instrument is screwed into the obstruction and pushed upwards towards the udder and the obstruction broken down in this manner.

No subsequent treatment is necessary; in fact, the introduction of such things as teat bougies is contra-indicated.

Prognosis.—Prognosis is good, particularly in cases where little pain has been evinced by the animal and when there is no evidence of blood staining the milk immediately after the operation; it may be said, indeed, that when there is considerable haemorrhage into the teat the chance of a satisfactory operation is practically nil. This is frequently caused by failure to make the primary puncture in the middle of the obstruction and therefore tearing the lining of the teat canal.

Obstructions in the apex of the teat may be very effectively dealt with by the use of Maclean's knife. In some cases where the use of this instrument does not allow the milk to escape freely the opening may be increased by an incision with the "Symes" abscess knife.

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Discussion

In the discussion, Mr. Wilkinson expressed the opinion that veterinary surgeons did not resort sufficiently frequently to teat surgery. He always used 1-10,000 acriflavine solution with which to infuse all teats on which he had operated. This, in his opinion, aborted any infection which might have resulted. It was generally agreed that where no bleeding resulted from teat operations, the results were more uniformly good.

Mr. Howe explained his use of a small ¼-in. diameter Hudson type corkscrew which he always used in place of Maclean's knife.

Mr. Swaby, who spoke eulogistically of his old friend Mr. Gold, asked for information on any method for the correction of torsion of the uterus other than by the rolling of the cow. If, for example, the torsion was partial he exerted torsion on the leg or legs which might have passed the cervix.

Mr. Swaby stressed the danger of a too-vigorous traction on Hudson's corkscrew which might result in the stripping of mucous membrane: he preferred to exert upward pressure to break down the fibrosed obstruction.

More than one member paid tribute to the genius of Mr. Hudson, who had completely revolutionised the correction of abnormalities in the teat canal.

Mr. Eaton brought up the subject of Pugh's operation for resection of a rib in the treatment of traumatic pericarditis, Mr. Gold stating that although he had operated on eight cases, only one had recovered. Mr. Swaby voiced the feeling of the meeting that it was not a practical operation, *i.e.*, one which can be carried out in the field by an operator of average ability, with few opportunities of improving his technique.

Mr. Gold replied suitably to all speakers and, in addition to the recital of his evidently successful operations in cattle, described an effective bovine Cæsarian section.

The speaker brought prepared specimens showing the technique he followed in amputation of the bovine digit and also illustrative of a skin suture in which a broader area of skin and deeper tissues was brought into apposition, thus ensuring stronger adhesions between the cut edges.

THE VETERINARY RECORD

April 12th, 1941.

BRITISH VETERINARY PERIODICALS: AN AMALGAMATION PROPOSAL

A LETTER published in this issue suggests that the time is opportune to effect a combination of current British veterinary periodicals. The motives cited in support of such action are three—to honour a great man who has passed; to repair the faults of our journalism and so present to the world a more adequate record of veterinary science; to ease the lot of those whose interests require them to search literature.

It is not made clear whether the proposal implies the dissolution of *The Veterinary Record* as such so that a successor may rise like the phoenix, with a new title and perhaps a new portrait on its cover. On this point we may assert clearly that we are not willing to supersede our founder, William Hunting, in favour of anyone, however great, nor lightly to break the continuity of half a century.

We are very conscious of imperfections, although we see no good reason to decry or to be ashamed of our journal or its governance. The Editorial Committee consists of some fifteen or twenty members, aided by a professional journalist who is a Member of the Royal College of Veterinary Surgeons. The members are truly representative of all branches of the profession and assiduous in attendance at meetings of this busiest of the committees. It would be difficult to devise a form of control better calculated to meet the wishes of readers. This is not the place to defend ourselves against criticism concerning the character, quality or volume of *The Veterinary Record*. We may say that constructive suggestions from readers are always given consideration and sometimes publicity. The major thesis of the letter, however, is amalgamation with other periodicals, an idea which will no doubt arouse a variety of opinion. It may be helpful to readers if we recite the main principles governing *The Veterinary Record*.

As the official organ of the National Veterinary Medical Association we record the activities and the policy of that body with its many divisions, providing a platform for debate and a vehicle for the dissemination of news and views. The proceedings of the Royal College of Veterinary Surgeons are reported in our columns. For the rest, we welcome scientific contributions which relate to veterinary interests, from all quarters. Admittedly articles which have an appeal to the clinician are given some preference and this trait in the character of the journal must be preserved. The more academic scientist is catered for in the abstracts section and, while we sympathise with his difficulties in searching a multiplicity of journals, we would point out that he is well served by publications which comprise only abstracts, to help his quest. It is probable that many readers are of opinion that we do not print enough clinical material, but the reason is that the practising clinicians, who constitute the great body of the profession, are not readily vocal. It is not for us to offer comment upon the style and quality of our journalism other than to say that it is the constant endeavour of the committee to ensure a standard of clarity and dignity, without insisting upon that degree of perfection which tends to discourage the unpractised author from submitting his work.

Whether amalgamation with our contemporaries is desirable or practicable is a problem upon which their views and those of our readers would be interesting. We are zealous to improve, but are not yet persuaded that any radical alteration in the general character of *The Veterinary Record* is called for.

In conclusion, we would remind our contributors and readers that just as a country gets the type of government it deserves, so a profession gets recognition by the reputation of its individual members, and a journal is judged by the quality of its contributions. It should be the duty of every member of the profession to ensure that he does his full share to improve the quality of *The Veterinary Record* by contributing useful articles, thereby enhancing his own reputation and adding his quota towards the fuller recognition and advancement of the profession.

A NEW SULPHONAMIDE

A new sulphonamide, sulphadiazine, which gives good results when tested on laboratory animals, has been investigated at the Johns Hopkins Hospital (Feinstone and others, *Bull. Johns Hopk. Hosp.*, 1940, **67**, 627). Chemically, sulphadiazine is 2-sulphanilamido-pyrimidine, one hydrogen atom in the sulphonamide group of sulphanilamide being replaced by the heterocyclic pyrimidine ring.

A high concentration of this compound was obtained in the blood of the rabbit after only one dose, and in chronic toxicity experiments sulphadiazine produced less tissue damage in monkeys than either sulphathiazole or sulphapyridine. The percentage of survivals of mice infected with haemolytic streptococci and treated, in each case with 10 mg., four times daily for three days, with sulphanilamide, sulphapyridine, sulphathiazole and sulphadiazine was 25·71, 31·3, 3·75 and 51·5 respectively. In the treatment of streptococcal and pneumococcal infections in mice results were also better than those obtained for the other three sulphonamides and against infection of the mice with Friedländer's bacillus, sulphadiazine gave a percentage of survival of 73·66 against less than 9 per cent. for the others.—*Pharm. J.*

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Lord Trent is ploughing up a number of acres in the home park of his Lenton estate, near Nottingham. He intends to grow on it potatoes, onions, carrots, other root crops and some of the members of the cabbage family. But five acres are being devoted to crops quite new to that part of England, namely, medicinal herbs. Most of these were imported before the war. The herbs he will grow are digitalis, belladonna, stramonium and henbane. They will be dried and used at Messrs. Boots' Beeston factory, a mile or so away.

CLINICAL COMMUNICATION

A Colic Case and its Sequel

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The subject was an 11-year-old chestnut gelding to which my principal, Mr. H. C. Rockett, attended one Friday afternoon. He found the horse in some pain and with more or less complete stasis of the bowel. A diagnosis of obstructive colic was made, and a 7-drachm physic ball given.

The following morning a report was received that the horse was no better and had not yet purged. I was detailed to see the animal. It was somewhat dull but did not give much evidence of pain. The temperature was normal; peristalsis sounded promising. I attempted to pass the stomach tube, but for some unknown reason the horse decided quite firmly that this should not be carried out: he would not even allow the tube to enter his nostril. After a reasonably determined but futile attempt, I gave up the struggle and contented myself with giving the horse 1 gr. of strychnine hypodermically. I did this the more readily as it seemed likely that very little further physic was necessary to procure purgation, and that the aloes merely needed a little "backing up." This was not to be, however, as later in the afternoon the horse was no better and still did not purge.

Deeming the stomach tube and saline to be the solution to the problem, I persuaded Major Wallace, a stomach tube expert, to take over my duties, even on a Saturday evening. As usual, he managed to get the horse to see eye to eye with him, and the stomach tube was passed with no difficulty: 8 oz. of common salt in 2 gallons of water were administered in this way, and the following morning we were all gratified to hear that the horse was much better.

Some ten days later, however, I was called out to see this horse again. Apparently he had not been really well since the attack of colic. He was dull and seemed prone to occasional attacks of pain. Although he was given a wineglassful of linseed oil in his food his faeces were always rather firm. He was not in bad condition, but his buttocks were somewhat lacking in muscle. There was now a largish swelling under the belly, including the sheath, and pus was exuding from a small hole a little anterior to the latter. Having explored the abscess cavity with a director, I lanced it. I felt quite confident then that the abscess only extended to the rectus abdominis, and no further. I left some iodine ointment to be rubbed into the swelling every second day, and advised that the horse should be given exercise; furthermore, that it would be a good idea to cut down his ration of oats a little.

Fourteen days later the owner 'phoned up to say that "the horse's guts were coming out!" My dismay can well be imagined without being described. Although I had taken every precaution in lancing the abscess, I had "flu" at the time, and I now felt that it was quite possible that this latest development was due to some fault of mine, although I was confident that the rectus abdominis was quite sound at the time I lanced the abscess.

It so happened that I could not go and see the damage I thought I had done, and I managed to pass this pleasant duty on to Mr. J. B. White. His observations were extremely interesting. The bowel was not falling out on to the stable floor as I had pictured, but faecal matter was being passed through the original abscess cavity, a fistula having been formed connecting the colon to the outside. The owner had had the horse a year and it frequently had slight attacks of colic. Mr. White observed that there were many scars on the belly of this horse. He therefore came to the conclusion that the animal (formerly a Londoner) had had a bad street accident, and that infection (of a chronic nature) from the wounds had gradually filtered through the muscles, causing adhesions of bowel to peritoneum. This would account for the repeated attacks of pain, and also for the sluggish peristalsis. It was decided that the safest course to follow was to adopt a "wait and see" policy. Actually in four days' time the fistula showed signs of healing. The horse was in good condition, and the owner managed to effect an exchange with the original vendor.

THE QUALITY OF BEING ENGLISH

"Bravery, fortitude, heroism until it is commonplace, you would expect. These may be the qualities of any great people, latent in the everyday, a kind of moral reserve, there to answer the call of the ancestors when the trial comes and the spirit takes over. That the English people possess them is not remarkable. The world would have taken it for granted.

"But there is, moreover, a quality of being English that belongs only to this race, and it is relevant as a curious fact that there is no word in their language or any other to express it. There is a glimpse of it in the bride going forth in her veils from a bomb-wrecked house; in the variation of "business as usual" with "more open than usual" where a bomb had taken away the entire shop front. Yet, even in such gallantries as these, the manner is more important than the fact. Indeed, high civilian morale under bombing from the sky has been an astonishing revelation. The Spaniards could take it. So could the Chinese. But the bishop writing a solemn letter to the London *Times* to complain that the sound of the air-raid sirens was wrong because the effect was to depress the spirit instead of making it defiant, was English. And the royal Christmas card, bearing a photograph of the King and Queen looking at the damage Hitler had done to Buckingham Palace, was a gesture of subtle derision fit for the book of immortal legends.

"No singular English characteristic is more intensified by crisis than the habit of under-statement. If this were but a foible or a superior mannerism it would fail in the desperate circumstance. So it is more than that. It is more than the conscious attitude of a people toward life, regarding it as their selfish possession. To life in the noble abstract they acknowledge an obligation to take it well and to keep its values true. Their theme is bigger than themselves. They probably could not state it if they would, or if they did they would understate it and reduce it to a monosyllable.

"The brilliant Spaniard, Salvador de Madariaga, thinking of the Englishman, says of him: 'Complex in all his functions, thinking with his instincts, acting with his mind, he naturally attains the supreme virtue of the man of action—wisdom.'"—*Saturday Evening Post* (U.S.A.).

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Owing to the spread of foot-and-mouth disease, Eire Department of Agriculture has made orders banning horse racing, horse jumping competitions, polo, hunting, dog racing, and coursing throughout Eire.

ANNOTATION

Trichiniasis

The outbreaks early this year of this comparatively rare notifiable disease in two different districts in England (Wolverhampton and Harpenden in Hertfordshire) and in November, 1939, in one district in Wales (Pembrokeshire, where small outbreaks occurred in 1922 (at Milford Haven) and 1930), have drawn attention to the constant need for careful search for the encapsuled larvae of *Trichinella spiralis* in all kinds of meat derived from both home-produced and imported pigs. The large Wolverhampton outbreak described by Sheldon[13] and Lee[10]—there were 500 cases at the time these authors wrote and the outbreak was then still going on—has been traced to the consumption of raw pork sausage, and Sladden[13] suspects that the 1930 outbreak of five cases in Pembrokeshire was due to ham originating from a Midland firm of wholesalers. Gillam[7], briefly describing the small 1922 (13 cases) and 1939 (eight cases) outbreaks in Pembrokeshire, does not say whether their origin was traced, but *The Lancet*[9B] states that the 1922 outbreak at Milford Haven was traced to sausage made from locally-reared pigs. Garrod and MacLean[6], describing the Harpenden outbreak, say that the source of the infested meat was not known when their account was written.

As *The Lancet*[9A] points out, there have been only small outbreaks of trichiniasis in these islands in the past, although cases may have been missed, because trichiniasis may closely simulate influenza, typhoid and other diseases. Our freedom from the disease may have been largely due to the habit attributed to most Anglo-Saxon peoples of thoroughly cooking their pig meat, but it is also a tribute to our meat inspectors, who perform their important and often tedious tasks with an efficiency that merits more public praise than it gets. The recognition of the encapsuled *Trichinella* larvae in the muscles of any animal requires time, experience and adequate equipment. The larvae are only 0·7-1 mm. long and are spirally coiled in their lemon-shaped capsules, so that they are usually not visible to the naked eye until they are calcified and calcification does not begin until the larvae have been in the muscle for six months to one year, being complete in 18 months or so. The task of spotting them is made easier by a low-powered microscope for the examination of pieces of muscle compressed strongly between two slips of strong glass, or this compressed muscle may be projected on to a screen. They may be found in human muscle by removing pieces of the deltoid muscle under a local anaesthetic (muscle biopsy). Garrod and MacLean[6] found one larva in one of their five patients in this way, but did not find any in two others examined. Lee[10] found larvae in two of his seven patients. On the other hand, *The Lancet*[9] quotes Augustine's[1] experience in America that this method is quite unreliable. Augustine also discards two other methods of diagnosis, namely, the examination of the stools for adult worms and the examination of centrifuged blood for the larvae during the time when these larvae are migrating from the intestine to the muscles. Augustine has more faith in the Bachman intradermal skin reaction done with antigen prepared by digesting living *Trichinella* larvae out of infested muscle with artificial gastric juice and, after drying and powdering these, infusing them in Coca's solution. The antigen must, however, be not stronger than 1 : 10,000. When it is used by experienced workers and is fortified by the Bachman precipitin test with the same antigen, this intradermal test may help the diagnosis of trichiniasis in both man and pigs, but it is necessary to repeat that dilutions of the antigen not stronger than 1 : 10,000 must be used and all possible sources of error must be considered. Previous infestations with *Trichinella*, group reactions due to infestation with the whipworm (*Trichuris trichiura*), a near relative of *Trichinella*, the administration of quinine for malaria or of arsenical compounds and possibly of other drugs, the existence of pneumonia, epidermophytosis, positive Wassermann and Kahn reactions, may all influence the Bachman reactions and especially the precipitin test. The experiences of various workers with them will be found in Bachman, Molina and Gonzalez[3], McCoy, Miller and Friedlander[11], Augustine and Theiler[3], who give a coloured plate of the skin reaction, Augustine[1], quoted in *The Lancet*[9] and Taliaferro[14]. Heathman[8] thought them less reliable than the eosinophilia and muscle biopsy for detection of *Trichinella* in man. Trawinski[15 16], working with pigs and dogs, pointed out that, when Coca's solution is used for making the antigen, the phenol in it may cause false positive reactions, especially with the precipitin test, and described a method of making an antigen with saline. Bozicevich[4A] described a similar method and a method of performing the intradermal test and found that his antigen made with saline was superior to antigen made with Coca's solution; but, from his experiments on man, he concluded that the clinical evidence, the blood picture and other factors must supplement the skin and precipitin reactions. He refers to the American and other literature on trichiniasis.

The protean symptoms of human trichiniasis are well described by Sheldon[13], Garrod and MacLean[6], and Lee[10], to whose accounts of the recent outbreaks the reader must be referred. In the first stage of the disease there may be varying degrees of vomiting with diarrhoea (or constipation) and abdominal pain. At this time the adult worms copulate in the small intestine and the male dies. The female burrows into the lymph spaces, where the embryos hatch in the uterus from the thin-shelled eggs, so that some 1,500 to 1,800 living embryos or more are laid into the lymph spaces.

The second phase begins about nine days after infested meat has been eaten, when the larvae are being carried by the lymph to the general blood circulation (or they get directly into the blood) and subsequently to the striated muscles, especially to the intercostal muscles, diaphragm, tongue, and muscles of the larynx, eye and neck region. At this stage the Wolverhampton observers found the characteristic great variability of the symptoms and simulation of influenza, typhoid and other diseases. Fever and headache are succeeded by " rheumatism," the muscle pains ranging from stiffness to real agony. Central nervous system symptoms may follow later, simulating encephalitis lethargica, monoplegias and meningitis. Peculiar sub-ungual haemorrhages, on the fingers, which turn black and resemble splinters under the nails, were noted in 10 per cent. of Sheldon's cases. But the most striking symptom, common to most of the cases, was rather sudden swelling of the eyelids. Most of the swelling subsided after about four days,

but it did not disappear for ten days or so. It was sometimes so severe that the eyes were closed and the oedematous conjunctiva, which sometimes showed haemorrhages, protruded through the closed eyelids. Oedema of the face, limbs and body was also seen. So striking was this swelling of the eyelids (which is also described by American observers) that it is recommended that any person suspected of influenza or typhoid, whose eyelids suddenly swell up, should be suspected of trichiniasis and examined accordingly. The existence of an eosinophilia greatly strengthens the suspicion. This varies at different stages of the disease, begins about the end of the first week, and lasts about six weeks, eosinophilias of 20 to 60 per cent. being common.

In the third stage of the disease the perimysium of the infested muscle fibre forms a connective tissue capsule round the spirally coiled larva. This is complete in one to two months. The muscle fibre degenerates and six months to a year after the larva has arrived in the muscle its capsule begins to calcify, calcification being complete in about 18 months. Inside the calcified capsule the larva can remain alive and infective for 10 to 30 years. When a new host eats the infested muscle, the larva is set free by the gastric juice and becomes sexually mature in the intestine in one to five days. If the infestation is severe the patient may die of toxaemia at this stage, but happily no deaths had been recorded either at Harpenden or Wolverhampton when the descriptions of these outbreaks by Sheldon[12], Garrod and MacLean[6] and Lee[10] were written, although some cases have been severely ill.

Certain social aspects of the disease are emphasised by the recent outbreaks. Garrod and MacLean[6] found that one of their Harpenden patients had given blood for transfusion the day before the illness began, so that it was at least possible that some of the larvae could have been transferred to another individual. They therefore rightly recommend that no person who is suspected of having trichiniasis should act as a blood donor.

Sheldon[12] found that the Wolverhampton outbreak was limited to industrial workers and that most of the sufferers lived in new housing estates and in similar types of home elsewhere in the town. Adult women preponderated in the proportion of about four women to one man, only two children being recorded, possibly because children eat less pig meat. Sheldon concluded that the men probably escaped because they expected, when they came home from work, a cooked meal, so that their sausages were rendered innocuous by the cooking. The larvae will not, according to *The Lancet*[9A], survive cooking to 160° F. The wives also ate cooked sausage, but, being very busy during the morning and very hungry at lunch time, they often nibbled a piece of raw sausage while the rest of their sausages were cooking, or possibly, it may be suggested, they were content, as so many English hotels are, with a sausage merely singed on the surface of one side of it. The daughters, on the other hand, wanting a quickly-prepared factory lunch, made sandwiches of uncooked sausage, and took them to work. Inquiries at the surgeries of three doctors showed that about 50 per cent. of the people asked admitted that they habitually ate raw sausage in this way. It would be interesting to know how common this habit is elsewhere, for, if it is at all common, the warning which *The Lancet*[9A] says has been already issued to the Wolverhampton people not to eat raw sausage should be extended to the whole country. As the same journal[9A] points out, large quantities of both home-produced and imported pigs are distributed from Wolverhampton. One of the Harpenden cases had been to Birmingham during the fortnight preceding the illness and another had been to London. Of the others, one was proved not to have eaten meat of any kind, one had eaten no meals away from home and the other had eaten raw sausage obtained locally in Harpenden. This does not, however, necessarily mean that these two latter patients were infested by pigs reared in Harpenden. Some of the pigs used to make sausages there may have come from Wolverhampton and war-time distribution plans may send pigs considerable distances from the towns where they are slaughtered. The existence of war-time distribution schemes should, however, make it easier to trace the origin of pigs which may cause further outbreaks.

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[16]*Idem*. (1936.) *Zbl. Bakt., Abt. I, Orig.* **136**. 238-241. Stellungnahme zu dem Artikel "Zur Frage der immunobiologischen Diagnose der Trichinose" vom Hans Theiler und Donald L. Augustine aus Department of Comparative Pathology, Medical School and School of Public Health, Harvard University, Boston. (Abstract in *Vet. Bull.* (1937.) **7**. 125.)

ABSTRACTS

[PHENOTHIAZINE AS AN ANTHELMINTIC FOR HORSES AND MULES. Errington, B. J., and Westerfield, C. (1940.) *Vet. Med.* **35.** 688-693.]

Errington and Westerfield have carried out a number of preliminary tests on 55 animals, varying in age from suckling foals to aged horses and mules, with commercial phenothiazine in an attempt to determine the efficacy, tolerance, dosage and method of administration of the chemical. In describing the methods used, the authors note that the drug was given, with few exceptions, in the grain feed the animals had been accustomed to receive and that no fasting was carried out. Animals ate the mixture of corn, oats, bran and drug more satisfactorily in a wet mash than in dry feed; those having a grain feed containing molasses ate it equally well dry as wet. The drug was given in the evening feed which was allowed to remain before the animals till morning. Four sucklings varying from 64 to 96 days old were given phenothiazine by means of a stomach tube and funnel, the drug being washed through with water. Egg counts, using Stoll's dilution technique and/or a sugar-flotation method, were made before and after treatment. The results of the tests are summarised in tabular form. In most of the animals treated the egg counts indicated that infestation was either eliminated or materially reduced but was followed by a gradual rise in the counts beginning from four to six weeks after treatment. One to one-and-a-half ounces for yearling thoroughbreds and two ounces for mature thoroughbreds and average-sized farm horses appear to be sufficient doses. The drug had no effect upon bots; little, if any, effect upon *Strongyloides westeri* of suckling foals and was apparently not altogether effective for ascarids of the horse, but was highly efficient in the elimination of mature strongyles from both horses and mules. Total red- and white-cell and differential blood counts were also made, after administration of the drug, for certain animals and from data collected in these cases it appeared that commercial phenothiazine produced a decrease in total red cells and haemoglobin more or less in proportion to the amount of drug received. The erythrocyte count returned to its previous level in about four weeks. J. N. O.

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[ANEURYSM OF THE POSTERIOR AORTA IN THE HORSE. Herdergen, Dr. (1940.) *Deuts. tierärztl. Wschr.* **48.** 217-9. (3 figs.).]

The symptoms recorded in this case—parasitic aneurysm of the terminal portion of the aorta and origin of the iliac arteries without thrombus formation—were similar to those in iliac thrombosis. The main points of difference were that the characteristic paralysis of the hindquarters following exercise soon appeared and progressed rapidly, the animal being recumbent in two minutes. This is attributed to the fact that, although at rest the flow through the artery was constant, the thickened walls and lacerated intima soon caused marked circulatory disturbance as the blood rate was increased. In iliac thrombosis the obstruction is more gradual as the cause is within the lumen of the vessel.

C. W. O.

[ALVEOLAR EMPHYSEMA IN THE HORSE. Carlström and Alegren. (1940.) *Skand. VetTidskr.*. **30.** 10-25.]

The authors are of the opinion that pulmonary emphysema in the horse is a narrowing of the finest bronchioles in the lungs and that the condition is mostly caused through irritation of the mucosa of the air spaces by excessive dust in the atmosphere. The narrowing of the bronchioles impedes the passage of air out of the alveoli, which become distended. This distension of the alveoli together with impaired nutrition of the lungs causes degenerative changes in the alveolar septa and elastic tissue. The authors have arrived at this conclusion by a study of the effect of atropine treatment in different stages of lung emphysema.

Diagnosis of the disease is based on a study of the pulse and respiration before, during and after half an hour of work normal to the horse under examination.

A method of treatment of acute cases of the disease is given, namely, the administration of 2 to 3 c.c. of a 1 per cent. solution of atropine (salt not stated) given subcutaneously morning and evening, and continued until the disease does not return when treatment is interrupted. The horse should continue to work during treatment. The tolerance to atropine varies and care must be taken with the initial dose. The drug affects intestinal peristalsis and occasionally causes colic. It is important that the stables housing such horses should be kept as clean as possible and free from dust. D. W. M.

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DRINKING HABITS OF ANIMALS

A. Brownlee, in a letter to *Nature* (September 20th, 1940) writes :—" In a recent publication[1], I made reference to a paper by Gregersen[2] in which he recorded that dogs, confined in cages and fed once a day, drank water from time to time during two to five hours after the meal and scarcely at all at other times of the day. I interpreted this to mean that the dogs did not drink water until an interval of two hours had elapsed after the time of feeding, whereas the charts shown in Gregersen's paper indicate clearly that the dogs drank water from time to time during the two to five hours *immediately* following the time of feeding. I wish to record my apology for my error.

" Also, mention is made, in my paper already referred to, of the drinking habits of leopards kept in confinement and fed once a day on flesh. Further observations made on one such leopard showed that, although on several occasions it did not drink water after feeding until an interval of about two hours had passed, this was not a constant habit. The observed intervals, expressed in minutes, between the time of completion of a meal and the time of first drinking water thereafter were : 2, 6, 15, 50, 56, 115, 120, 121, 148."

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The Royal Dublin Society's Spring Show was to have been held at Balls Bridge, Dublin, on May 7th, 8th and 9th, but owing to the unfortunate situation which has developed as the result of the foot-and-mouth disease complications the Show has now been indefinitely postponed.

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Weekly Wisdom

Philosophy in one of its functions is the critic of cosmologies. It is its function to harmonise, refashion and justify divergent intuitions as to the nature of things.—Whitehead : " Science and the Modern World."

IN PARLIAMENT

Among the questions and answers recently recorded in the House of Commons are the following:—

Animals (Protection)

Mr. R. Morgan asked the Home Secretary what facilities his Department has offered for the development of an air-raid precautions service for animals throughout the country; and what grant has been made towards the upkeep of the organisation developed?

Mr. Mabane: In the summer of 1939 the National A.R.P. for Animals Committee was called into being by the then Lord Privy Seal. This Committee, made up mainly of representatives of the animal welfare societies and the veterinary profession, undertook to develop and finance air raid precautions for animals in towns. My Department and other Departments were represented on the Committee. The Treasury made an initial grant of £1,000 and a further advance of £1,500 towards the purchase of equipment. Later the scope of the scheme was extended to deal with animals on farms. This side of the organisation is at present under review, and I am not at present in a position to make any statement about the financial arrangements.

At a later session, Mr. Salt asked the Home Secretary whether he is aware that nearly every practising veterinary surgeon in the country has for some months been giving his services free to the National A.R.P. for Animals Committee in order to assist in the development of an air raid precautions service for animals throughout the country to make available professional advice to all animal lovers in emergency; and whether he will officially recognise these veterinary surgeons as members of the official Civil Defence organisation and facilitate in every way the development of the organisations for which they are responsible in their own localities?

Mr. H. Morrison: As regards the attitude of the Government towards air raid precautions for animals, I would refer my hon. Friend to the answer given to the hon. Member for Stourbridge (Mr. R. Morgan) on April 2nd. While greatly appreciating the work which has been done voluntarily by veterinary surgeons, I can see no advantage in adding to the labours of the local authorities or diminishing the responsibility of the veterinary surgeons by putting them under the supervision of the former, as would be necessary if they were formally included in the local authorities' Civil Defence organisation.

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Foot-and-Mouth Disease

Mr. David Adams asked the Minister of Agriculture whether, in view of the very large loss of food-stuffs involved in the slaughter of stock on account of foot-and-mouth disease, he is exploring every avenue in search of possible cures; and whether his Department has accepted offers of demonstrations of cures for this disease by the late lecturer in special pathology, University College, Dublin?

Mr. Hudson: It is not the fact, as suggested in the hon. Member's Question, that very large losses of food-stuffs are involved in the slaughter of stock on account of foot-and-mouth disease. As I have already stated, the majority of the carcases are salvaged for human consumption. The gentleman referred to in the last part of the Question was afforded an opportunity by the Foot-and-Mouth Disease Research Committee of proving his claim to have solved the problem of preventing and curing foot-and-mouth disease.

Mr. Adams: Is the Minister aware that the professor had a letter recently in the *Times* in which he said he had offered the Ministry of Agriculture demonstrations of a cure, but was refused?

Mr. Hudson: Yes, sir, but I think the hon. Member has been long enough in for public life not to take notice of every letter in a newspaper and not to assume that what a writer says is correct.

Mr. Adams: May I say that I have every reason to believe that in this case it is correct?

Major Sir George Davies: While the Minister is exploring every avenue, will he take care to see that he leaves no stone unturned?

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Horse-Racing

Sir Ralph Glyn asked the Home Secretary whether, in view of the difficulties of rationing, he will call for an immediate return of the number of racehorses in training, and, after consultation with the appropriate authorities interested in horse-breeding and racing, decide on a long- and short-term policy?

Mr. Stokes asked the Home Secretary whether, in view of the shortage of feeding-stuffs necessitating the slaughter of a great quantity of hens and pigs, he will take steps to suspend horse-racing either for the duration of the war or until a greater quantity of feeding-stuffs is available?

Mr. H. Morrison: The continuation of horse-racing was recently reviewed in consultation with all the Departments concerned, and full account was taken of the considerations to which my hon. Friends refer. The conclusion arrived at by the Government was that it would not be in the national interest to prohibit racing altogether. It was, however, arranged with the Stewards of the Jockey Club that the programme for the flat-racing season should be further reduced. The continuation of racing next winter will be considered in the light of the situation then prevailing. As regards the suggestion that a return should be obtained of the number of racehorses in training, this information is being obtained periodically, and there has already been a substantial reduction in the number.

Sir R. Glyn: Will my right hon. Friend consider having a similar return at fixed periods of six or seven weeks to see what progress is being made in putting down a certain number of horses which are not necessary for thoroughbred breeding? Will he bear in mind the action of the Irish Government and the horses that move across the Channel between meetings here and in Ireland?

Mr. Morrison: I will consider those points.

Mr. Stokes: My point is that the hens and pigs are being killed now, and would it not be more prudent to stop horse-racing in the next six months in order to keep hens and pigs alive and restart horse-racing when the feeding-stuffs position is better?

Mr. Morrison: I cannot claim to be an expert on horse-racing, but a decision to close it down altogether would be a very serious decision to take in relation to an industry of some importance. The Government feel that at the present moment, while there has been a reduction in racing, they ought not to pursue a policy which would mean an end of this industry altogether.

Mr. Stokes: But is the right hon. Gentleman aware that there are double the number of horses in training now as compared with the last war?

LIVERPOOL DEGREE EXAMINATIONS

The following is the University of Liverpool, School of Veterinary Science, Examination List for March, 1941, in connection with the University Degree of B.V.Sc.:—

Degree of B.V.Sc.

Final Examination:—*Part I*: Clarke, R., Edwards, C. M., Shaw, G. D. *Part II*: Clarke, R., Edwards, C. M., Shaw, G. D.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

April 23rd.—Annual General Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at the Society's House, 1, Wimpole Street, W.1, 4.15 p.m.

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Reservation of the Profession

Members of the profession who wish to volunteer for general service with His Majesty's Forces may do so by applying in the first instance to the Royal College of Veterinary Surgeons on a form which will be supplied by the Secretary (Temporary address for correspondence: 18, Victoria Avenue, Harrogate).

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N.V.M.A. SPECIAL COMMITTEE ON TUBERCULIN TESTS

Members of the profession will be interested to know that the Medical Research Council and the Agricultural Research Council agreed to Dr. Percival Hartley, of the Institute for Medical Research, Hampstead, attending the meeting of the N.V.M.A. Tuberculin Tests Committee which was held on March 10th, 1941.

Dr. Hartley is Director of Biological Standards at the National Institute and some months ago was appointed a member of the Joint Tuberculosis Committee of the Agricultural Research Council and Medical Research Council. Since then he has been prominently identified with the work which that Committee has undertaken on the standardisation of tuberculin for veterinary use and on the determination of the dose of tuberculin which should be used. At the committee meeting Dr. Hartley described in detail the principles underlying standardisation of biological products and discussed the possibility of obtaining a standard for veterinary tuberculin. He outlined the work which the Joint Tuberculosis Committee has undertaken in this and closely allied fields.

While it is obviously impossible at present to furnish the profession with an account of Dr. Hartley's address on these unpublished researches, the Committee wishes the profession to know that it was impressed by the energy with which these problems are being tackled and by the progress which had been made.

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R.C.V.S. OBITUARY

Lawson, Alexander William, Ochilview, Dunning, Perth. Graduated N. Edinburgh, April 21st, 1884. Died March 26th, 1941, aged 78 years.

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CHARTER FOR FARMERS

Commenting on the Sixth Report of the Select Committee on National Expenditure, which deals almost entirely with the Ministry of Agriculture and its wartime activities and policy, *The Farmers' Weekly* observes: "It is a document which might well become a best seller among farmers and all well-wishers of agriculture, and if the major recommendations made therein were adopted, it might implement in a lasting manner all the high-sounding but rather vague promises about the 'healthy, well-balanced agriculture' which is to be a 'permanent feature of national policy after the war.'

"Right at the start the Committee, unlike some others, has appreciated that the need is not merely to produce short-range results of immediate value to the country's war effort, but to effect a lasting improvement. How is this to be done? The Committee's most concrete suggestion is that of a charter for agriculture, a charter on which the industry could rely with confidence.

"Hitherto, says the report, the Government's agricultural plan has been developed piecemeal. The time has come to take stock of the position, and to consolidate the experience already gained into a more comprehensive plan. Such a plan, based on a full review of all the relevant facts, and debated in Parliament, would constitute a charter for farmers.

"How much do we know on which to base such a charter? For 18 months of war, farmers have worked under the direct orders of the county war agricultural committees. In other words, they have worked under the direction of the Ministry of Agriculture. On thousands of acres the county committees have farmed directly on behalf of the State. Last year every farm in the country was surveyed. Alongside this information it may put the knowledge and discoveries produced by scientific research undertaken on behalf of the Government, but often neither available, practicable nor economical for the small individual farmer. It should not be at all difficult for the Ministry to marry its experience and the knowledge that is available, and to produce from the union a charter which would give farmers the full measure of confidence that they have sought for so long.

"Such a charter would be far more concrete and reliable than all the politicians' promises, and all the piecemeal agricultural policy that farmers have ever known. There, in black and white, would be set out in as great detail as possible all that farmers may expect from the State and from the fruits of their own labour through the remainder of the war, and after, when the last All Clear has sounded and we look ahead with apprehension for the slump which so often follows world war.

"And while this is an unequalled opportunity for the Ministry of Agriculture, it is also a task that calls aloud for action by the National Farmers' Union. The Union too has—or should have—data, information, experience based on the activities of practical working farmers who know what has happened at the business end of past agricultural policy.

"Bearing in mind the Select Committee's suggestion, and putting at its face value the importance of such a move to the industry, the Union might well forestall any official charter by issuing its own charter in which would be indicated the lines on which practical working farmers would base post-war policy.

"The Union asks for more money from its members. That is a need with which all progressive farmers will concur. But to justify it, the Union must take a much wider view of its mission here. And in providing guidance for the basis of such a charter, the Union might at one swoop justify—and get—all the extra financial support it asks from farmers.

"Reports from committees of the House of Commons have sometimes an unhappy knack of being forgotten, overlooked, sometimes deliberately, sometimes through pressure of other matters. It will be a national disaster for agriculture if the Sixth Report of the Select Committee on National Expenditure is allowed to follow the Perry Report, and many others, into the dusty oblivion of the official pigeon hole."

The Coming Cull: Intelligent Co-operation Required

In its next issue (April 4th) *The Farmers' Weekly* published the following related observations by Mr. H. W. Steele-Bodger, M.R.C.V.S., President of the N.V.M.A.:—

"I have read with much interest and appreciation your editorial entitled 'Charter for Farmers,' and I trust that the advice which you tender will not fall upon barren soil.

"It would be nothing short of a tragedy if the admirable short-term policies for the benefit of agriculture now being evolved were allowed to lapse after the war; but it is equally important that these plans should be capable of being merged into a future long-term policy. The preparation of that long-term policy should be initiated forthwith. It should be a team job for all those interested in the welfare of agriculture.

"I was also glad to note your suggestion in the 'Editor's Diary,' that the imminent reduction of stock may be less of a blow to farmers than is anticipated.

With this view I entirely agree. I am confident that with intelligent co-operation between members of my profession and their clients, the proposed cull in dairy herds could be effected without any reduction in the total milk yield of the country—indeed, I believe the present total yield could be augmented in spite of the further decrease in available rations. To make this possible, the effort must be mutual and must be applied without delay.

"The county war agricultural committees have undoubtedly done a good job of work and benefit has been conferred upon agriculture, by the elimination of certain individuals for failing to employ methods of good land husbandry. I have, however, yet to hear of any farmers being evicted for bad animal husbandry—are such farmers less numerous and less wasteful?"

CORRESPONDENCE

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

Correspondents submitting letters for anonymous insertion must forward their names and addresses for the information of the Editor; otherwise their communications will not receive consideration.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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A PLEA FOR A COMPREHENSIVE VETERINARY JOURNAL

To the Editor of the Veterinary Record

Sir,—The lamented death of Sir John M'Fadyean and the suspension of his journal (*The Journal of Comparative Pathology and Therapeutics*) raise for consideration by our members the question of instituting a periodical worthy of his memory and of the present high position of our profession in the realm of science—a position which he largely helped to create.

M'Fadycan's journal portrayed the activity of one section of the profession in an adequate manner and thereby gave some index of our high standing in science to those who read our literature outside the profession, but contemporary publications were not so helpful in that sense, and in my opinion are still inadequately so, although they have shown some improvement recently. For this and other reasons I suggest that the time is now opportune to consider the whole question of our journalism, and the best answer would seem to be to pool, and if necessary to augment, the resources of existing periodicals by substituting one comprehensive weekly journal to cover all sections of the profession's activities.

The advantages of such a change would include not only a suitable reflection of our scientific status in the eyes of others, but the making available in readily accessible form of current knowledge of all scientific and topical happenings within our relatively small fold. The present practice of spreading such records over various periodicals outside, as well as within, our existing veterinary journals causes much trouble and annoyance to those of us who have to seek them out and prevents much valuable information reaching many of our members. Such a journal if suitably edited in sections should contain material attractive to every member of the profession. A minor, but not so important, advantage would be an organ of reasonable size.

It is realised, of course, that difficulties of some magnitude would have to be overcome to effect this change, but I suggest that the financial and other interests involved should not be insuperable if the bulk of the profession should happen to support it, as I believe they would.

Yours faithfully,
W. Kearney.

Veterinary College,
Dublin.

RED CROSS AGRICULTURE FUND

To the Editor of the Veterinary Record

Sir,—In a recent issue you very kindly inserted a leaflet appeal on behalf of the Red Cross, made by the Veterinary Sub-Committee of the above Fund, together with an editorial note drawing special attention to it. I regret to say that the response has been most disappointing.

That direct donations would be very acceptable was not stressed, but the assistance of members of the profession was invoked in the effort to augment the fund, particularly by taking collecting boxes and the sale of photographic reproductions of British breeds of livestock. The latter are of a remarkably outstanding character and the full set of 60 costs only 5s. Every veterinary surgeon and every veterinary student should obtain the full set, which includes not only the more commonly known breeds, but also those with which they are not as familiar. Most children would be delighted to have them. Their educational value to all is really high, and anyone obtaining the full sheet may also receive free, if he requests it, a small album into which the photographs may be fixed. The sheets are perforated and gum-backed.

The requests for collecting boxes at present number less than a score!!! One way in which the latter may be used with some success is to carry the box in the pigeon-hole in the dash-board of the car and the many people who are now so often given a lift may be invited to put into it at least a portion of the 'bus or rail fare they are saving. I personally have adopted this plan with some success and I generally find that the person getting the lift is most grateful for the comfort and convenience it affords him or her, and is not primarily bent on saving the few pence. Of course, one does not draw the attention of members of the Forces to it.

The increasing demands on the Red Cross Fund are enormous, and I would earnestly beg a more generous response on the part of the veterinary profession, such as has been freely given by agriculturists and by all other professions and trades associated with agriculture. Response to the appeal in the manner suggested will cost them nothing more than just a little effort and sympathy. Requests for boxes and breeds sheets should be made to the Secretary, Red Cross Agriculture Fund, 14, Cross Street, Reading.

It is pleasing to note that in the Annual Report of the Fund dated February 28th, 1941, generous tribute was paid to the excellent help given by members of the profession on County Committees in various ways.

Yours sincerely,
Geo. H. Wooldridge,
Chairman of the Veterinary Sub-Committee of the Red Cross Agriculture Fund.

Royal Veterinary College,
Streatley House,
Streatley, Berks. *April 4th*, 1941.

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CONTROL OF DISEASES OF FARM LIVESTOCK

To the Editor of the Veterinary Record

Sir,—The N.V.M.A. Survey Committee's report very properly stresses the necessity of early advice being sought in the treatment and control of the diseases in question. Several writers have bemoaned the fact that the farmer does not seek such advice until the disease has become far advanced in the herd. To my mind this reluctance is not altogether due to slackness but rather more, indeed, to the fact that, in the past, we as a profession have not been able to offer him any real assistance in his difficulties.

We are now presented with a scheme to control these diseases, but it is well to pause and consider whether we are yet in a position to offer the farming community that assistance which the scheme promises. In the case of chronic streptococcal mastitis we are definitely able to help, but first the farmer must be educated to recognise that this is a contagious disease responsible for enormous loss of milk even in sub-clinical cases. The myth of the

"chill in the bag" must be exploded and he must be taught to adopt clean and hygienic methods. When he realises that such measures will materially increase the size of the milk cheque he will not be so slow to co-operate.

The control of Johne's disease by regular testing with johnin appears to offer hope of the eventual control of the disease, but it is essential that some means be found to supervise the adequate segregation of the reacting animals.

As regards contagious abortion and sterility, however, the value of the scheme is questionable. It is almost unanimously agreed that the dead vaccine is useless, and that the live vaccine, whilst definitely reducing the number of abortions, has very serious disadvantages. We are told that calfhood vaccination with an attenuated vaccine is valuable and that by the time the heifers reach calving age they will no longer react to the agglutination test. Can both these statements be true? Surely strong resistance to *Br. abortus* depends entirely on a high titre of agglutinins in the blood.

Sterility would appear to be a disease syndrome which requires much more research before we are able to promise very much to the farmer. I believe that by far the commonest cause is physiological derangement of the reproductive system, and whilst ovarian massage is undoubtedly a valuable form of treatment it is by no means the complete answer. We should be in a position to say "this treatment should do the trick" instead of "it may be beneficial," before we can claim to control sterility on a national scale.

One hesitates to criticise the views of a man of Dr. Tom Hare's standing, but as a practitioner I feel bound to challenge some of the statements made in his letter.

Dr. Hare attacks the Committee for concerning itself solely with chronic streptococcal mastitis, but surely he must agree that this type is far more prevalent and causes a far greater loss to the dairying industry than do all the others put together.

I submit that it is not only a waste of valuable time but it is not necessary to wait for a laboratory diagnosis before treating chronic streptococcal mastitis. If diagnosis is based on (*a*) the typical appearance of the milk (*b*) the fact that no other symptoms of disease are present and (*c*) the knowledge that this is by far the commonest form of mastitis in dairy herds, one can correctly diagnose the presence of *Str. agalactiae* in a very high percentage of cases. Prompt treatment of such cases by irrigation of the udder with an acriflavine product can always be accompanied by a favourable prognosis. Admittedly cases are frequently met in which there is an acute flare-up of a chronic mastitis, but here again one cannot afford to wait for the laboratory or the knackerman will get in first.

Dr. Hare appears to scorn udder infusion—one would like to know on what grounds his objections are based. In this practice intra-mammary infusion has yielded most spectacular results and several farmers have remarked that the cow gave more milk after treatment than she had ever given before. I have never yet obtained the slightest result by the use of vaccines—either stock or autogenous—in the treatment of chronic mastitis, and in conversation with several practitioners have yet to meet one who has. One case I saw as a student remains very vividly in my memory. An autogenous vaccine had been prepared and the animal was given six injections at weekly intervals. At each visit the unfortunate cow was a little worse than on the previous occasion. The view was expressed that perhaps she would be all right at the next lactation. What if she were? By that time a whole year would have been wasted. We can ill afford to feed cows for twelve months in the hope that "they will be all right next time." Let us look at the question in a rational light. The disease is insidious in onset and the organisms have been present in the udder for some time before symptoms are observed. Surely an otherwise healthy animal would develop a natural immunity much stronger than one could hope to induce by artificial means.

The same remarks apply to the use of the dead vaccine for contagious abortion, which still seems to have its supporters amongst those who do not have to meet the farmer whose money has been spent to no avail.

Again, I cannot countenance Dr. Hare's remarks concerning Johne's disease. He claims that examination of dung from scouring cattle reveals evidence of heavy parasitic infestation more frequently than Johne's bacilli. The former is a disease of young cattle up to two years old, whereas the latter is almost invariably met with in cattle over that age.

Attention is drawn to the fact that over one-third of our farmers subsist on labourers' standards or less, and that they have not the means to depart from the established system of their business. One inclines to the view that they can no longer afford not to depart from it—that it is due to lack of education *in their job* that they cannot make a better living, and that it is up to the Ministry of Agriculture, the veterinary profession and the county advisory committees to see that these men are educated to make the best use of the means at their disposal.

The Survey scheme can undoubtedly assist the farming community and the nation as a whole, but let us not paint too rosy a picture, or make claims which we are unable to fulfil, and above all let us see to it that the farmer is educated to fulfil his part.

Yours faithfully,

49, Cambridge Street,
Aylesbury,
Bucks.

R. R. Bugg.

March 24th, 1941.

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To the Editor of the Veterinary Record

Sir,—Most practitioners will agree in the main with Dr. Tom Hare's criticism of the Survey Committee's report in to-day's issue of *The Veterinary Record*. He stresses, and rightly so, the need for closer collaboration between the practitioner and the laboratory. He might also have suggested a closer degree of collaboration between the various laboratories. I must confess to being unable to follow many of their varied findings when investigating diseases of farm stock: it makes one wonder if they are always talking about the same disease. We practitioners would often welcome a simpler and less technical report: we do not want to know that a certain organ contains about one dozen different microbes all capable of causing various diseases—we want something definite that will satisfy our client.

I do not agree with Dr. Hare that live abortion vaccine causes sterility and is injurious to drinkers of raw milk: all practitioners make very sure that they are working with contagious abortion before they ever think of introducing the live culture on to premises; I cannot see that it can make any difference to the large quantity excreted by even one cow. As for sterility, there is quite as much of it in infected herds where the culture is never used at all. Rather would I blame for the increase intensive feeding and the use of the water bowls. How seldom is one troubled with sterility where both the cow and the bull have to go into the field every day and do some work for their living. It is little use advising isolation for abortion or any other disease, as not one farm out of 50 has the accommodation to isolate either during winter or summer. The only practical method to treat abortion is by live culture, and several of my clients are confident that by treating as maiden heifers these keep immune for the rest of their lives no matter what infection they may encounter.

Mastitis is one of several diseases that have altered in symptoms and mode of attack within the last 30 years. Perhaps it is commoner and the loss of milk greater, but it certainly is not so often fatal. Some say this is due to better and more enlightened treatment, but I doubt it. There are so many and varied forms of mastitis and many so-called cases of mastitis are not really udder diseases at all. With "August bag," for instance, it always appears a matter of chance whether the udder is affected or the joints—of course often both are involved. Loss of quarter through obstruction

in the teats, especially at the base, is getting more common. Good, healthy cows calve down and when an attempt is made to milk them it is discovered that one teat, or more, is blocked at the base. I must confess to having achieved very little success in boring such teats.

It would appear that little progress is being made in reducing tuberculosis in our herds. The clearing up of certain herds is only increasing the disease in others for which nothing is being done. Here again I think a start should be made with the young animals, leaving the older to wear out. The first thing to do, and it would cost the country nothing, would be to make the owner produce a tuberculosis-clean chart for every young bull before scheduling. This would encourage the sale of the pedigree young bulls with such charts and stop them going direct from the sale yard to the butchers as so many have done in the past. Whether tuberculosis is hereditary or not, I have seen many disastrous results from the use of a tuberculous bull in a herd. Next I would test all heifer calves, say, under twelve months or between ten and twelve months old, and brand all reactors. They could be fed off. This might appear drastic and interfere with the trade of the country, but I doubt if it would do so to a very great extent. Practising in a country where, chiefly, feeding is carried on and where in normal times farmers have been buying heifers only for summer feeding, I have seen hundreds of good likely milking heifers go to slaughter. The idea is that heifers feed more rapidly on grass than do bullocks. I would advise, as at present, the regular inspection of herds and the quick removal of all animals showing clinical signs of tuberculosis.

Johne's disease is much less common in my district than it used to be; in fact, it is not a serious problem at all.

Yours faithfully,

Boroughbridge, Yorks. Wm. A. Campbell.

March 22nd, 1941.

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CONTROLLED REDUCTION OF LIVESTOCK

To the Editor of the Veterinary Record

Sir,—With the country-wide interest shown just now in the excellent work embodied in the Survey Committee's Report, Mr. U. F. Richardson's remarks about the widespread losses in the poultry industry are timely. Before the war the loss from disease in adult laying birds alone was said to be £4,000,000 per annum.

Thousands of chickens are now being hatched out and sold to inexperienced "back-yarders"; a large proportion of these are from inferior and unprolific stocks and infected with disease. Much of this is preventable; fowl paralysis, with its hereditary tendency, tuberculosis and fowl pox, with their infectious properties, can all be cut down to small proportions by rearing from trap-nested, productive, clean flocks.

The Government has encouraged, inspected and registered certain poultry-farms as "accredited." In these, elaborate precautions, such as regular blood-testing for B.W.D., leg-banding, reporting of infectious disease, and maintenance of high laying or breeding standards, are taken, to ensure such healthy stock of good economic quality. There are also many other farms which are not accredited, but in which similar precautions are taken.

At long last the Government is showing some preferential treatment for these good stocks in not including them in the next rationing cut to a sixth of pre-war levels. But why the delay? Why not cut out all non-proven stock as soon as possible? There would be enough sound birds available to absorb the very small allowance of feeding-stuffs promised, and this would encourage, rather than dishearten, the patriotic "back-yarder" and convert the precious "balancer meal" into two ounce eggs instead of drooping wings, emaciated carcases and cheesy mouths.

Government control of all poultry breeding-stations under direct veterinary supervision appears to be the only way to effect this state of affairs and to this end we should strive at once with all our might.

Admittedly this subject is not of such great economic importance as the great cattle scourges, but, to my mind, it is more logical to endeavour to check obvious ravages and wastage of this kind, which can be largely minimised in a comparatively short time, than to concentrate too much on such a controversial scheme as the control of mastitis and contagious abortion, which may be somewhat beyond our powers under present farming conditions.

Yours faithfully,

228, High Street, Berkhamsted. D. N. Spriggs.

March 31st, 1941.

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THE TUBERCULIN TESTS

To the Editor of the Veterinary Record

Sir,—I am very much impressed by Mr. Turnbull's letter in your issue of March 15th, and much of which I endorse, but it was the last paragraph, *i.e.*, "I failed to see much progress result from this recent meeting, and rather than victory there seemed to be an atmosphere very like defeat," which has stimulated me to reply. I had intended to speak at the meeting, but I did not hear our President pass to the next item on the agenda until it was too late.

In my experience the double intradermal tuberculin test is 100 per cent. correct and reliable in the hands of an efficient operator. As I have repeatedly stated, the technique is extremely delicate, and I now look upon it as a great tragedy that this test was ever placed at our disposal without previous arrangements having been made to instruct in the operation those desirous of applying it. Demonstrations are next to useless, as only two or three of perhaps 100 present can get a close enough view for the occasion to be of any service to them.

I tested periodically a large number of bovines intradermally in my tuberculin tested herds, and was astonished at the number which gave a reaction to the intradermal test, while still giving none to the subcutaneous test. I had the opportunity of making *post-mortem* examinations ultimately, which authenticated the intradermal reactions.

At this period the subcutaneous test was being discredited, and I submit that the statement above suggests that repeated testing subcutaneously had permanently or temporarily sensitised the animal against the subcutaneous test. In the subcutaneous test 3 c.c. of tuberculin was injected as against 1/10th c.c. in the intradermal. I have never experienced a case in which the animal has been sensitised by intradermal testing and thus has failed to give a reaction at a future test.

At this point it may be wise to ask, what is tuberculin? It is a culture of tubercle bacilli upon a special medium for a given time, the bacilli then being killed and removed by filtration. Therefore it becomes a dead vaccine. Many of us have had experience of the use of these dead vaccines as a prophylactic, or as a curative, measure. The small quantity (1/10th c.c.) used in intradermal testing may account for the animal not becoming sensitised, but with the increase in potency the greater becomes the danger of permanent sensitisation becoming evident.

I am convinced that the majority of so-called pseudo-reactions are the result of faulty technique, and that by care and strict observation they would be eliminated, but I am afraid if the same clumsy instruments are still in use, it will render the task more difficult. They always conjure up in my mind the fanciful picture of a watch-maker using a shoeing-smith's hammer and pincers for his repairs.

It is my considered opinion that the bewildering swellings which sometimes occur are caused solely by the manner and position in which the tuberculin is injected and the condition of the particular skin.

The research men suggest "Avian tuberculosis bacilli" as the cause. Remember, they must say something, and this sounds most scientific.

Yours faithfully,

J. C. Coleman.

Swindon.

March 23rd, 1941.